



Huntington's Disease Society of America

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Presenter Disclosures

Samuel Frank, MD

The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

Consultant to Lundbeck
Speaker for Allergan



Huntington's Disease Society of America

Therapeutic Use of Supplements & Alternative Therapies

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Additional Disclosures

- Trained in NIH fellowship
 - Experimental therapeutics
- My Father is CFO of nutritional supplement company
 - None of their products will be discussed today

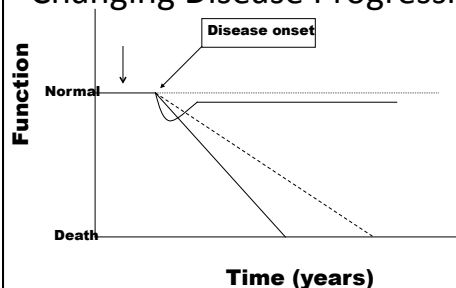
Overview

- Available 'traditional' treatments
- Scientifically studied treatments
- Defining traditional vs. complimentary vs. alternative
- Review of supplements and other therapies

3 Main Aspects of HD:

- Movement disorder
- Cognitive disorder
- Psychiatric/Behavioral/Emotional disorder

Changing Disease Progression



Prescription Medications

- Neuroleptics
 - Haldol, etc.
- Dopamine depleting agents
 - Tetrabenazine
- Antidepressants
- Antiglutamatergic drugs
 - Amantadine, memantine
- GABA agonists
- Antiepileptic medications
- Acetylcholinesterase inhibitors
 - Aricept, etc.
- Botulinum toxin

Surgery

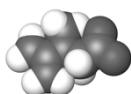
- Deep brain stimulation
- Pallidotomy
- Fetal cell transplants
- Porcine cell transplants

Studied Supplements

- CoEnzyme Q₁₀
- Creatine
- Ethyl-EPA
 - ½ of element of fish oil

Creatine

- Amino acid
- 95% of creatine is located in muscles
- 5% is divided between the brain, heart and testes
- Found mostly in meats but smaller amounts in fish, dairy, eggs, nuts and seeds
- May reduce brain cell breakdown



Other Discussed/Proposed Compounds

- Blueberry extract
- Trehalose
 - Found naturally in shrimp, sunflower seeds, shitake mushrooms, baker's yeast and streptococcus mutans (bacteria responsible for cavities)

Therapeutic Targets: Survival Benefit (%) in Mouse Models

- Huntingtin aggregation
 - Congo Red (16.4)
 - Trehalose (11.3)
- Transcriptional dysregulation
 - SAHA (not tested)
 - Sodium butyrate (21.7)
 - Mithramycin (29.1)
- Apoptosis
 - zVAD-fmk (25)
 - ICE-dominant-negative (20)
 - YVAD-fmk (no effect)
 - DEVD-fmk (no effect)
 - YVAD-cmk with DEVD-fmk (17.2)
 - Taurodeoxycholic acid (not tested)
 - Minocycline (No effect - 13.5)
- Transglutaminase inhibitors
 - Cystamine (12-19.5)
- Mitochondrial dysfunction
 - Creatine (4.4-19.3)
 - Dichloroacetate (7.2-9.8)
 - Triacetyridine (11)
- Anti-excitotoxic and mitochondrial
 - Coenzyme Q10 (15.5)
 - Remacemide (14.5)
 - Coenzyme Q10 with Remacemide (No effect - 20.3)
 - Lithium chloride (No effect)
 - Riluzole (10.2)
- Inflammation and oxidative damage
 - BN-82451 (15.3)
 - α -lipoic acid (7-8.2)

Beal and Ferrante, Nat Rev Neuro
5/2004

Completed HSG Studies

- Intro-HD (OPC-14117)
- CoEnzyme Q₁₀
- Remacemide
- Minocycline
- Essential fatty-acids
- Creatine
- Riluzole
- Tetrabenazine

National Center for Complementary and Alternative Medicine (NCCAM)

- Division of National Institutes of Health
- Complementary medicine is used together with conventional medicine.
 - Ex: aromatherapy to help lessen a patient's discomfort following surgery
- Alternative medicine is used in place of conventional medicine.
 - Ex: using a special diet to treat cancer instead of undergoing surgery, radiation, or chemotherapy that has been recommended by a conventional doctor
- Integrative medicine combines treatments from conventional medicine and CAM for which there is some high-quality evidence of safety and effectiveness

<http://nccam.nih.gov>

Supplements: The Bottom Line

- Very little evidence at this time for HD or other neurological diseases that supplements treat symptoms or delay disease.
- The safety of some supplements is known.
- If safe, supplements may only hurt your wallet and may be helpful.
- Scientific studies are needed to determine how well supplements work.

What's Been Studied in Neurology

- Meditation, relaxation, breathing techniques
- Yoga
- Tai chi and qigong
- Hypnosis
- Biofeedback

Examples of "Body-Based" Therapies

- Qi Gong
- Tai Chi
- Acupuncture
- Reiki
- Chiropractic Manipulations
- Massage therapy

Also tried

- Hypnosis
- Hydrotherapy
- Relaxation
- Music therapy
- Cannabinoids

What Has Not Been Tried?

- Combination therapies (in a rigorous scientific method) in humans

Overall Principles

- Do not spend too much money
- Do not do anything that common sense suggests would be dangerous
- Do not neglect or discontinue proven, effective medical therapies in favor of an unproven therapy